

(No Model.)

2 Sheets—Sheet 1.

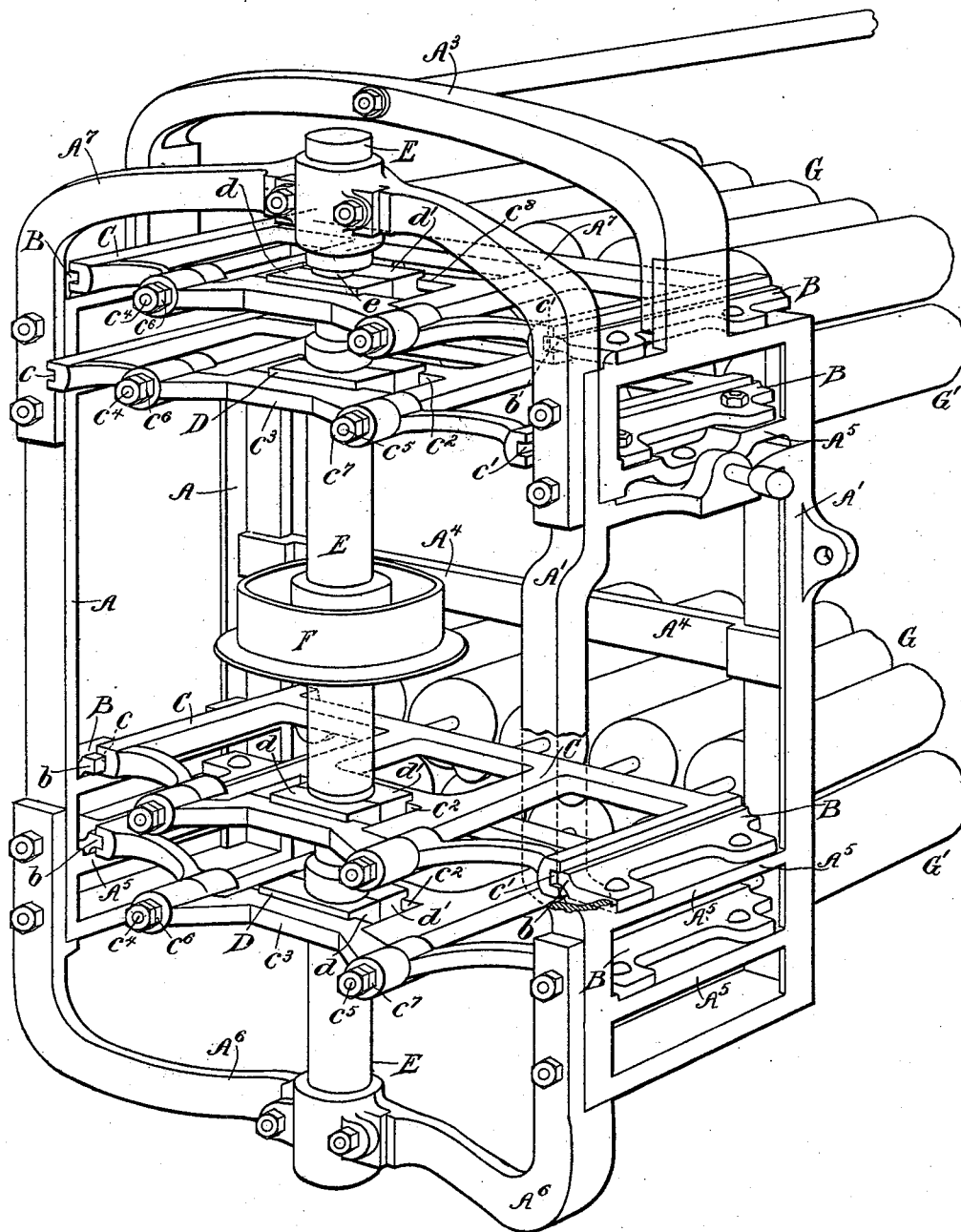
E. KAY.

RUB MOTION MECHANISM FOR CONDENSER CARDING MACHINES.

No. 523,640.

Patented July 24, 1894.

Fig: 1



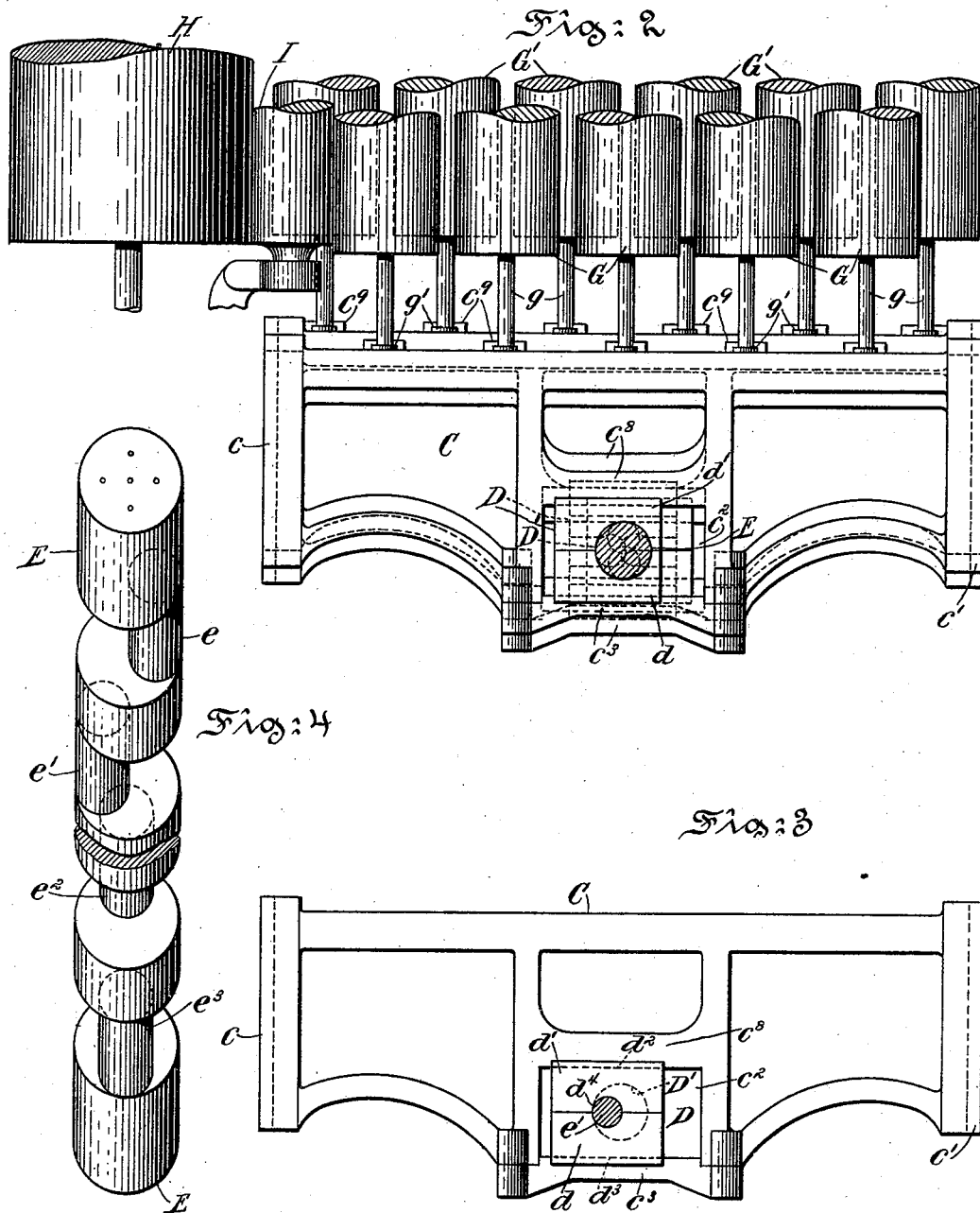
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

EDWARD KAY, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO BESWICK
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RUB-MOTION MECHANISM FOR CONDENSER CARDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 523,640, dated July 24, 1894.

Application filed April 24, 1894. Serial No. 508,788. (No model.)

To all whom it may concern:

Be it known that I, EDWARD KAY, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Rub-Motion Mechanism for Condenser Carding-Machines, of which the following is a specification.

My invention has relation in general to condenser or finisher carding machines; and it relates more particularly to the construction and arrangement of the driving mechanism of the rub-motion of such a machine adapted to transform sliver or slubbing into roving.

The principal objects of my present invention are first, to provide a comparatively simple and effective mechanism for actuating the rub-rolls of a condenser or finisher carding machine to permit of an appreciable increase in the speed thereof and with the friction on the parts of said mechanism correspondingly reduced; and second to provide a condenser of a carding machine with sliding yokes or frames adapted for the reception of divided grooved blocks or boxes which are connected with and actuated by a quartered eccentric shaft in apertures of the sliding yokes or frames engaging guides or ways connected with the standards of the machine to permit by means of said shaft of certain motions being imparted to said mechanism in order to thoroughly and expeditiously transform sliver or slubbing into roving and at a higher rate of speed than hitherto was possible and with friction on the working parts due to the arrangement of said mechanism reduced to a minimum, whereby a better character of roving is obtained.

My invention consists of the improvements hereinafter described and claimed.

The nature and general features of my invention will be more fully understood from the following description taken in connection with the accompanying drawings forming part hereof, and in which—

Figure 1, is a perspective view of one end of the condenser of a carding machine embodying the features of my invention. Fig. 2, is a top or plan view, showing the grooved yokes or frames, the divided and grooved

boxes or blocks actuated by the quartered eccentric shaft, the ring doffer-cylinder, doffer-roll, rub-rolls and the means for connecting the rub-rolls to the yokes or frames of my invention. Fig. 3, is a similar view in detail of one of the yokes or frames; and Fig. 4, is a perspective view of the quartered eccentric shaft for controlling the different motions of the boxes and yokes actuating the rub-rolls of the machine.

Referring to the drawings A and A', represent standards at one end of the machine. These standards A and A', are connected with each other at the top by means of an arch piece A³, and in the middle by a cross-bar A⁴, and these parts together comprise a frame for the reception of certain mechanisms of my invention to be hereinafter fully explained.

On integral cross pieces or shelves A⁵, of the standards A and A', on each side are detachably secured guides or ways B, by means of bolts and nuts b', and provided with upwardly curved or extending ends b, for engaging grooved or forked yokes or frames C, as clearly illustrated in Fig. 1. These yokes or frames C, have their respective ends c and c', forked or grooved for engaging with the curved ends b, of the guides or ways B, so that the yokes or frames C, may be reciprocated thereon by means of mechanism to be presently explained. These yokes or frames C, are each provided with an oblong slot c², the front wall of which is formed by the provision thereof of a recessed piece or bar c³, of preferably the shape illustrated in Figs. 1, 2 and 3, and which by means of bolts c⁴ and c⁵, and nuts c⁶ and c⁷, is detachably secured to each yoke or frame C. In the slot c², of each yoke or frame C, is inserted a divided and grooved box or block D, the parts d and d', of which are provided with grooves d² and d³, engaging the arms or pieces c³ and c⁵, thereof, as illustrated in Figs. 1, 2 and 3.

The parts d and d', of a box or block D, are each provided with a semicircular aperture d', forming together a circular opening D', for engaging one of a series of eccentrics or cams formed preferably integral with a vertical driving shaft E, which is journaled at its upper and lower extremities in curved brackets A⁶ and A⁷, suitably secured to the

front of the standards A and A', as clearly illustrated in Fig. 1.

The shaft E, is provided at suitable distances apart with integral cams or eccentrics 5 e , e' , e^2 and e^3 , as clearly shown in Figs. 1 and 4, and these cams or eccentrics are arranged at or about an angle of ninety degrees to each other, as will be readily seen from Fig. 4, of the drawings. Each of these cams or 10 eccentrics of the shaft E, engages in an opening D', of one of the series of divided boxes or blocks D, of the yokes or frames C. Two of these eccentrics or cams of the shaft E, are located at the upper portion of the machine 15 and two at the lower portion thereof, for example, in the manner as illustrated in Fig. 1, of the drawings.

At or about the center of the shaft E, is secured a flanged pulley F, adapted for the reception of a belt, not shown, by means of 20 which the pulley F, and the cam or eccentric shaft E, may be rotated from any suitable source of power. When the shaft E, is rotated the series of eccentrics or cams thereof 25 will actuate the respective blocks or boxes D, afforded a range of sliding movement in the oblong slots c^2 , of the frames or blocks C, and the said boxes or blocks will reciprocate the respective frames or yokes C, on the 30 guides or ways B, back and forth within the standards A and A', as clearly illustrated in Figs. 1 and 2.

According to the quartered arrangement shown of the cams or eccentrics e , e' , e^2 and 35 e^3 , of the shaft E, one of the yokes or frames C, will always be at a point farthest from the transverse movement of the same toward the right of Fig. 1, and at the same time another yoke or frame C, will be at a point farthest 40 from its transverse movement toward the left of Fig. 1, while the two remaining blocks or frames C, will occupy a center position within the standards A and A', as will be readily understood from Figs. 1, 2 and 4 of the drawings. 45

Each yoke or frame C, is provided with a shoulder c^3 , having a recess or groove for the reception of a shouldered end g' , of a shaft 50 g , of each of the two series of rub-rolls G and G'. These rolls, it is understood, are set in rotation by gear or other suitable mechanism not shown located on the opposite side or end of the machine.

It will be readily understood from Figs. 1 55 and 2, that by means of the respective yokes or frames C, and quartered cams or eccentrics e , e' , e^2 and e^3 , of the shaft E, when the latter is rotated by means of the pulley F, and a belt, not shown, surrounding the same and 60 actuated from any suitable source of power, the two series of rub-rolls G and G', will be reciprocated in a transverse direction to their rotation from the opposite side of the machine and in the manner hereinbefore fully 65 explained.

It may be here remarked that by the arrangement of the cams or eccentrics e , e' , e^2

and e^3 , on the shaft E, at or about an angle of ninety degrees to each other in connection with the divided and grooved blocks or boxes 70 D, and adapted to actuate the yokes or frames C, engaging the guides or ways B, of the standards A and A', friction on the several parts due to such arrangement and ease of movement of the same is lessened and the rub-rolls 75 G and G', adapted thereby to be reciprocated at a higher rate of speed than was heretofore possible in the use of condensers of carding machines, so that as practice has demonstrated, a far better rubbing action on the 80 fibrous material issuing from the doffer cylinder H, to doffer rolls I, and the rub-rolls G and G', is thus obtained.

The mode of operation of the hereinbefore described machine is as follows:—The ring 85 doffer cylinder H, being set in rotation divides the fibrous material issuing from the carding engine in action in the form of sheets into strips and presents the same to the doffer rolls I, which latter in turn supply the two 90 rows or series of rub rolls G and G', therewith. These two rows or series of rub-rolls G and G', located in the upper and lower portions of the standards A and A', are rotated in opposite directions so that the sliver or 95 slubbing will be fed through the same from the left toward the right in Figs. 1 and 2. Each row or series of rub-rolls by means of the quartered cams or eccentrics e , e' , e^2 and e^3 , of the shaft E, and blocks or boxes D, 100 sliding back and forth longitudinally in the yokes or frames C, also slide to and fro transversely of the machine, when motion is imparted to the shaft E, from the pulley F, by means of a belt to be connected therewith, 105 to cause the strips of sliver or slubbing to be transformed into rovings by the thorough action derived through the passage of the fibrous material between the two series or rows of rub-rolls G and G', in the manner explained 110 and so as to leave the same in a completely formed roving for subsequent treatment or use.

It will be manifestly obvious that as to minor details of construction and arrangement 115 of parts of the mechanism of my invention as hereinbefore fully explained, modifications may be made without departing from the spirit thereof; and hence I do not wish to be understood as limiting myself to the precise construction and arrangement of such 120 mechanism as hereinbefore explained; but,

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is— 125

1. The combination, in a rub motion mechanism for a condenser carding machine, of standards provided with cross-pieces or shelves having detachable guides or ways, sliding yokes or frames provided with flanged 130 ends having grooves formed therein and engaging said guides or ways, centrally arranged slots in said yokes or frames, rub-rolls connected with said yokes or frames, divided and

5 grooved boxes or blocks in movable engagement with the slots of said yokes or frames, a shaft provided with cams or eccentrics set at about an angle of ninety degrees to each other and engaging said blocks or boxes, and means for actuating said shaft, substantially as and for the purposes set forth.

10 2. The combination, in a rub motion mechanism for a condenser carding machine, of standards having detachable ways or guides connected with the sides or ends thereof, sliding yokes or frames with grooved or channeled ends engaging said ways or guides and provided with oblong slots, the front walls of
15 each of said slots being formed of a recessed piece or bar which is secured by means of

bolts and nuts to said yokes or frames, two series of rub-rolls connected with said yokes or frames, grooved and divided blocks or boxes movably engaging in the slots of said yokes or frames, a quartered cam or eccentric shaft engaging said blocks or boxes, and means for imparting rotary motion to said shaft, substantially as and for the purposes set forth. 20 25

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

EDWARD KAY.

Witnesses:

THOMAS M. SMITH,
RICHARD C. MAXWELL.